National Institute of Environmental Health Sciences

Uncertainty in future regional sea level rise due to internal climate variability

Author(s): Hu AX, Deser C
Year: 2013
Journal: Geophysical Research Letters. 40 (11): 2768-2772

Abstract:

Sea level rise (SLR) is an inescapable consequence of increasing greenhouse gas concentrations, with potentially harmful effects on human populations in coastal and island regions. Observational evidence indicates that global sea level has risen in the 20th century, and climate models project an acceleration of this trend in the coming decades. Here we analyze rates of future SLR on regional scales in a 40-member ensemble of climate change projections with the Community Climate System Model Version 3. This unique ensemble allows us to assess uncertainty in the magnitude of 21st century SLR due to internal climate variability alone. We find that simulated regional SLR at mid-century can vary by a factor of 2 depending on location, with the North Atlantic and Pacific showing the greatest range. This uncertainty in regional SLR results primarily from internal variations in the wind-driven and buoyancy-driven ocean circulations.

Source: http://dx.doi.org/10.1002/grl.50531

Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Sea Level Rise

Geographic Feature: ☑

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location: ☑

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Long-Term (>50 years)